

10-8 Reteaching

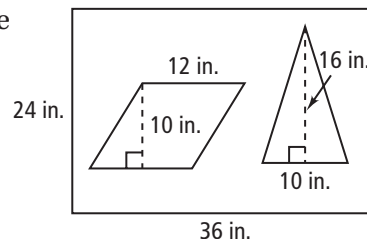
Geometric Probability

Problem

If a dart lands at random on the poster at the right, what is the probability that the dart will land inside one of the polygons?

Find the sum of the areas of the polygons.

$$\begin{aligned}
 \text{area of polygons} &= \text{area of parallelogram} + \text{area of triangle} \\
 &= (12)(10) + \frac{1}{2}(10)(16) \\
 &= 120 + 80 \\
 &= 200 \text{ in.}^2
 \end{aligned}$$



Find the total area of the poster.

$$A = (24)(36) = 864 \text{ in.}^2$$

Calculate the probability.

$$\begin{aligned}
 P(\text{polygon}) &= \frac{\text{area of polygons}}{\text{total area}} \\
 &= \frac{200}{864} \\
 &\approx 23\%
 \end{aligned}$$

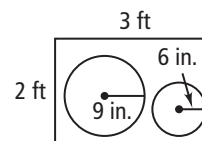
Exercises

Complete each exercise.

- Use a compass to draw a circle with radius 1 in. on an index card.
- Calculate the theoretical probability that if a tack is dropped on the card, its tip will land in the circle.
- Lift a tack 12 in. above the index card and drop it. Repeat this 25 times. Record how many times the tip of the tack lands in the circle. (Ignore the times that the tack bounces off the card.) Calculate the experimental probability:

$$P = \frac{\text{number of times tip landed in circle}}{25}$$

- How do the probabilities you found in Exercises 2 and 3 compare?
- If you repeated the experiment 100 times, what would you expect the results to be?
- If a dart lands at random on the poster at the right, what is the probability that the dart will land in a circle?

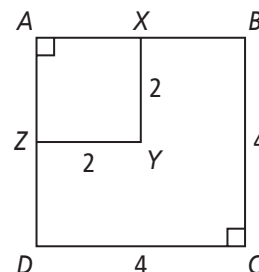


10-8 Reteaching (continued)

Geometric Probability

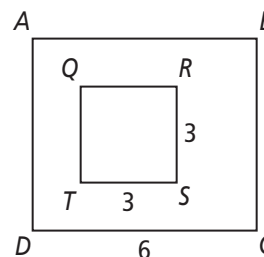
For Exercises 7–10 give your answer as a ratio and as a percent.
 For Exercises 7 and 8 use square $ABCD$ at the right.

- Point P in square $ABCD$ is chosen at random.
 Find the probability that P is in square $AXYZ$.
- Find the probability that P is *not* in square $AXYZ$.



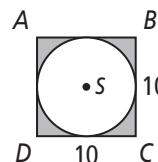
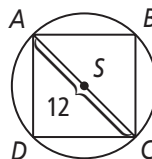
For Exercises 9 and 10 use rectangle $ABCD$ at the right.

- Point P in rectangle $ABCD$ is chosen at random.
 Find the probability that P is in square $QRST$.
- Find the probability that P is *not* in square $QRST$.

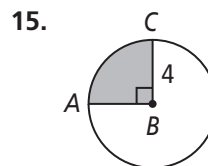
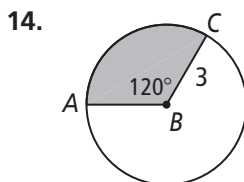
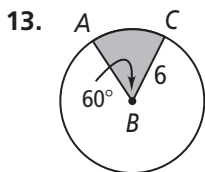


Give your answer in terms of π , then as a percent.

- Point P in square $ABCD$ is chosen at random.
 Find the probability that P is *not* in $\odot S$.
- Point P in $\odot S$ is chosen at random.
 Find the probability that P is in *not* in square $ABCD$.



Point P in $\odot S$ is chosen at random. Find the probability that P is in sector ABC .
 Give your answer in terms of a ratio, then as a percent.



- The cycle of the light on George Street at the intersection of George Street and Main Street is 10 seconds green, 5 seconds yellow, and 60 seconds red. If you reach the intersection at a random time, what is the probability that the light is red?